2. BENEFICIAL USES

The basis for the discussion of beneficial water uses which follows is Section 13050(f) of California's Porter-Cologne Water Quality Control Act, which states:

> "Beneficial uses" of the waters of the state that may be protected against water quality degradation include, but are not necessarily limited to, domestic, municipal, agricultural, and industrial supply; power generation; recreation; aesthetic enjoyment; navigation; and preservation and enhancement of fish, wildlife, and other aquatic resources or preserves.

A key part of a water quality control plan is an assessment of the beneficial uses which are to be protected. Table 2-1 identifies beneficial uses for major surface water bodies in the Region, as well as for broad categories of waters (i.e., bays, estuaries, minor coastal streams). Protection will be afforded to the present and potential beneficial uses of waters of the North Coast Region as shown in Table 2-1. The beneficial uses of any specifically identified water body generally apply to all its tributaries. For unidentified water bodies, the beneficial uses will be evaluated on a case-by-case basis.

Water bodies within the Region that do not have beneficial uses designated for them in Table 2-1 are assigned MUN designations in accordance with the provisions of State Water Resources Control Board Resolution No. 88-63 "Sources of Drinking Water" policy (Appendix Section of this plan) which is, by reference, a part of this plan. These MUN designations in no way affect the presence or absence of other beneficial use designations in these water bodies.

The most sensitive beneficial uses from the standpoint of water quality management are municipal, domestic, and industrial supply, recreation, and uses associated with maintenance of resident and anadromous fisheries. The Klamath, Trinity, Smith, Eel, and Mad Rivers, and others within the North Coast Region, are renowned for salmon and steelhead fishing and support a substantial portion of the ocean sport and commercial fisheries for these species. Other notable features of the basin's beneficial uses are the wildfowl use on three national wildlife refuges in the Lost River
and Butte Valley hydrologic areas and an abundance of deer and other wildlife throughout the Region.

The codes used in Table 2-1 are explained in greater detail as follows:

Municipal and Domestic Supply (MUN) - Uses of water for community, military, or individual water supply systems including, but not limited to, drinking water supply.

Agricultural Supply (AGR) - Uses of water for farming, horticulture, or ranching including, but not limited to, irrigation, stock watering, or support of vegetation for range grazing.

Industrial Service Supply (IND) - Uses of water for industrial activities that do not depend primarily on water quality including, but not limited to, mining, cooling water supply, hydraulic conveyance, gravel washing, fire protection, or oil well repressurization.

Industrial Process Supply (PROC) - Uses of water for industrial activities that depend primarily on water quality.

Groundwater Recharge (GWR) - Uses of water for natural or artificial recharge of groundwater for purposes of future extraction, maintenance of water quality, or halting of saltwater intrusion into freshwater aquifers.

Freshwater Replenishment (FRSH) - Uses of water for natural or artificial maintenance of surface water quantity or quality (e.g., salinity).

Navigation (NAV) - Uses of water for shipping, travel, or other transportation by private, military or commercial vessels.

Hydropower Generation (POW) - Uses of water for hydropower generation.

Water Contact Recreation (REC-1) - Uses of water for recreational activities involving body contact with water, where ingestion of water is reasonably possible. These uses include, but are not limited to,

swimming, wading, water-skiing, skin and scuba diving, surfing, white-water activities, fishing, or use of natural hot springs.

Non-Contact Water Recreation (REC-2) - Uses of water for recreational activities involving proximity to water, but not normally involving body contact with water, where ingestion of water is reasonably possible. These uses include, but are not limited to, picnicking, sunbathing, hiking, beachcombing, camping, boating, tidepool and marine life study, hunting, sightseeing, or aesthetic enjoyment in conjunction with the above activities.

Commercial and Sport Fishing (COMM) - Uses of water for commercial or recreational collection of fish, shellfish, or other organisms including, but not limited to, uses involving organisms intended for human consumption or bait purposes.

Aquaculture (AQUA) - Uses of water for aquaculture or mariculture operations including, but not limited to, propagation, cultivation, maintenance, or harvesting of aquatic plants and animals for human consumption or bait purposes.

Warm Freshwater Habitat (WARM) - Uses of water that support warm water ecosystems including, but not limited to, preservation or enhancement of aquatic habitats, vegetation, fish, or wildlife, including invertebrates.

Cold Freshwater Habitat (COLD) - Uses of water that support cold water ecosystems including, but not limited to, preservation or enhancement of aquatic habitats, vegetation, fish, or wildlife, including invertebrates.

Inland Saline Water Habitat (SAL) - Uses of water that support inland saline water ecosystems including, but not limited to, preservation or enhancement of aquatic saline habitats, vegetation, fish, or wildlife, including invertebrates.

Estuarine Habitat (EST) - Uses of water that support estuarine ecosystems including, but not limited to, preservation or enhancement of estuarine habitats, vegetation, fish, shellfish, or wildlife (e.g., estuarine mammals, waterfowl, shorebirds).

Marine Habitat (MAR) - Uses of water that support marine ecosystems including, but not limited to, preservation or enhancement of marine habitats, vegetation such as kelp, fish, shellfish, or wildlife (e.g., marine mammals, shorebirds).

Wildlife Habitat (WILD) - Uses of water that support terrestrial ecosystems including, but not limited to, preservation and enhancement of terrestrial habitats, vegetation, wildlife (e.g., mammals, birds, reptiles, amphibians, invertebrates), or wildlife water and food sources.

Preservation of Areas of Special Biological Significance (BIOL) - Includes marine life refuges, ecological reserves and designated areas of special biological significance, such as areas where kelp propagation and maintenance are features of the marine environment requiring special protection.

Rare, Threatened, or Endangered Species (RARE) - Uses of water that support habitats necessary, at least in part, for the survival and successful maintenance of plant or animal species established under state or federal law as rare, threatened or endangered.

Migration of Aquatic Organisms (MIGR) - Uses of water that support habitats necessary for migration or other temporary activities by aquatic organisms, such as anadromous fish.

Spawning, Reproduction, and/or Early Development (SPWN) - Uses of water that support high quality aquatic habitats suitable for reproduction and early development of fish.

Shellfish Harvesting (SHELL) - Uses of water that support habitats suitable for the collection of filter-feeding shellfish (e.g., clams, oysters, and mussels) for human consumption, commercial, or sports purposes.

The list of beneficial uses in Table 2-1 reflects demands on the water resources of the Region. Water quality objectives based on those uses will adequately protect the quality of the Region's waters for future generations.

Current beneficial uses may be broadly categorized as

water supply, recreation, fish and wildlife habitat, navigation, power generation, and scientific study.

PHOTO PAGE

TABLE 2-1
BENEFICIAL WATER USES IN THE NORTH COAST REGION

WATER BODY [1]	MUN*	AGR*	IND*	PROC*	GWR	FRSH	NAV	POW	REC1	REC2	COMM	WARM	COLD	BIOL	SAL	WILD	RARE	MAR	MIGR	SPWN	SHELL	EST	AQUA
Lost River HA																							
Clear Lake Reservoir & Upper Lost River	P	E	P	P	E	E		P	E	E	E	E	E			E	E			E			P
Lower Lost River		E	P	P	E	E			P	E	E	E				E	E						P
Tule Lake		E				E			P	E	E	E				E	E						P
Lower Klamath Lake		E				E			P	E	E	E				E	E						P
Butte Valley HA																							
Meiss Lake		E							P	E	E	E				E							P
Shasta Valley HA																							
Shasta River	P	E	P	P	E	E		P	E	E	E	E	E			E			E	E			P
Lake Shastina	P	E	P	P	E	E			E	E		E	E			E				E			P
Scott River HA																							
Scott River	P	E	P	P	E	E			E	E	E		E			E			E	E			P
Salmon River HA																							
Salmon River	P	P	P	P		E			E	E	E		E			E			E	E			P
Middle Klamath River HA																							
Iron Gate and Copco Reservoir	P	P	P	P		E		E	E	E	E	E	E			E	E		E	E			E
Klamath River	E	E	E	E	E	E		E	E	E	E	E	E			E	E		E	E			E
Applegate River HA																							
Applegate River	E	E	E	E	P	E		P	E	E	E		E			E			E	E			P
Upper Trinity River HA																							
Clair Engle Lake and Lewiston Reservoir	E	E	E	E	E	E		E	E	E	E	E	E			E				E			E
Trinity River	E	E	E	P	E	E			E	E	E		E			E			E	E			E
South Fork Trinity River HA																							
South Fork Trinity River	E	E	P	P		E			E	E	E		E			E			E	E			P
Hayfork Creek	E	E	E	E	E	E		P	E	E	E		E			E			E	E			P
Ewing Reservoir	E								P	E	E	E	E			E							P
Lower Trinity River HA																							
Trinity River	E	E	P	P	E	E			E	E	E		E			E			E	E			P
Lower Klamath River HA																							
Klamath River	E	E	P	P	E	E	E		E	E	E	E	E			E			E	E		E	E

TABLE 2-1 (CONTINUED)
BENEFICIAL WATER USES IN THE NORTH COAST REGION

WATER BODY [1]	MUN*	AGR*	IND*	PROC*	GWR	FRSH	NAV	POW	REC1	REC2	COMM	WARM	COLD	BIOL	SAL	WILD	RARE	MAR	MIGR	SPWN	SHELL	EST	AQUA
Illinois River HA																							
Illinois River	E	E	E	P		E		P	E	E	E		E			E			E	E			P
Winchuck River HU																							
Winchuck River	E	E	E	P		E		P	E	E	E		E			E			E	E			P
Smith River HU																							
Smith River	E	E	E	E	E				E	E	E	E	E			E	E		E	E		E	E
Lake Earl									E	E	E	E				E			E			E	P
Lake Talawa									E	E	E	E				E			E			E	P
Crescent City Harbor							E		E	E	E					E		E	E	E	E		P
Redwood Creek HU																							
Redwood Creek	E	E	E						E	E	E		E			E	E		E	E		E	P
Mad River HU																							
Mad River	E	E	E	E	E			E	E	E	E	E	E			E	E		E	E		E	E
Eureka Plain HU																							
Humboldt Bay		E	E				E		E	E	E		E			E	E	E	E	E	E	E	E
Eel River HU																							
Eel River	E	E	E		E		E	E	E	E	E	E	E			E	E		E	E		E	E
Van Duzen River	E	E	E						E	E	E		E			E	E		E	E			E
South Fork Eel River	E	E	E		E				E	E	E		E			E	E		E	E			P
Middle Fork Eel River	E	E	E		E				E	E	E		E			E	E		E	E			P
Outlet Creek	P	E	E		E				E	E	E		E			E			E	E			P
Cape Mendocino HU																							
Bear River	P		E						E	E	E		E			E			E	E		E	P
Mattole River	E	E	E						E	E	E		E			E			E	E		E	P
Mendocino Coast HU																							
Ten Mile River	E	E	E		E				E	E	E		E			E			E	E		E	P
Noyo River	E		E		E				E	E	E		E			E			E	E		E	P
Jug Handle Creek	E	E	E		E				E	E	E		E			E			E	E		E	P
Big River	E	E	E		E				E	E	E		E			E			E	E		E	P
Albion River	E		E		E				E	E	E		E			E			E	E		E	P
Navarro River	E	E	E		E		E		E	E	E		E			E			E	E		E	P
Garcia River	P	E	E						E	E	E		E			E			E	E		E	P
Gualala River	E		E						E	E	E		E			E			E	E		E	P

TABLE 2-1 (CONTINUED)
BENEFICIAL WATER USES IN THE NORTH COAST REGION

WATER BODY [1]	MUN*	AGR*	IND*	PROC*	GWR	FRSH	NAV	POW	REC1	REC2	COMM	WARM	COLD	BIOL	SAL	WILD	RARE	MAR	MIGR	SPWN	SHELL	EST	AQUA
Russian River HU																							
Russian River	E	E	E	E	E		E	E	E	E	E	E	E			E			E	E		E	E
Laguna de Santa Rosa		E	E						E	E	E		E			E							P
Bodega HU																							
Bodega Bay		E	E				E		E	E	E		E	E		E		E	E	E	E		E
Coastal Waters			E		E		E		E	E	E			E				E	E	E	E		E
Minor Coastal Streams																							
Not Listed above**	E	P	P		P				P	P	E		P			P			P	P		E	P
OCEAN WATERS			P	P			E		E	E	E			P		E	E	E	E	E	E		E
BAYS			P	P			E		P	E	E			P		E	P	E	E	E	E	P	P
ESTUARIES			P	P			E		E	E	P			P		E	P	E	E	E	E	E	P

[1] Water bodies are grouped by hydrologic unit (HU) or hydrologic area (HA).

* Groundwater or surface water

P = Potential
E = Existing

** Permanent or intermittent

PHOTO PAGE

A major percentage of water supply use in the Region occurs in the Mad River and Russian River hydrologic units. Agricultural water use is distributed over more areas than domestic, municipal and industrial use, and includes the Russian River, Eel River, Smith River, Mad River, Redwood Creek, Cape Mendocino, Mendocino Coast hydrologic units, as well as the Lost River, Butte Valley, Shasta Valley and Scott Valley areas of the Klamath River hydrologic unit.

Recreational use occurs in all hydrologic units on both fresh and salt water. Coastal areas receiving the greatest recreational use have been the ocean beaches, the lower reaches of rivers flowing to the ocean, and Humboldt and Bodega Bays. Rivers receiving the largest levels of recreational use are the Russian, Eel, Mad, Smith, Trinity, and Navarro Rivers, and Redwood Creek. Activities cover the spectrum of water-oriented recreation, with fishing and river running being popular on the rivers, and fishing, clamming and beach combing predominating at the ocean beaches and bays. Sightseeing has been an important recreational activity throughout all of the North Coast Region.

Fish and wildlife are abundant in the Region. Coastal waters and streams support anadromous fish which are important for both sport and commercial fishing. The Smith River, Klamath River, Redwood Creek, Mad River, Eel River, Russian River and the coastal streams total over 1,000 miles of stream habitat suitable for salmon and steelhead. Humboldt and Bodega Bays support shellfish and fish populations which are very important to the commercial fishing industry and to the recreationalist. Both bays also provide refuge for wildlife populations, especially waterfowl, shorebirds, and other water-associated birds.

Several of the watersheds of the North Coast Region support plant and wildlife species that are now considered to be rare, threatened, and endangered. A few examples are the Swainson's hawk, Bald eagle, American peregrine falcon, California clapper-rail, Lost River sucker, Shortnose sucker, California freshwater shrimp, Howell's spineflower, Baker's larkspur, and Sebastopol meadowfoam, all of which have been observed on watershed areas in the North Coast Region. The Department of Fish and Game prepares an annual report which summarizes the status of rare, threatened, and endangered plants and animals.

Navigation is vital to the economy of the Region. There are fishing ports at Crescent City, Eureka, Fort Bragg, and Bodega Bay. The most important commercial harbor between San Francisco and Coos Bay, Oregon, is located at Humboldt Bay.

There is a small amount of hydroelectric power generation in the Region. Hydroelectric power plants are located at Iron Gate Reservoir and Copco Lake on the Klamath River, Clair Engle Lake on the Trinity River, Matthews Dam on the Mad River, Van Arsdale Dam on the Eel River, Coyote Dam on the East Fork of the Russian River, and Warm Springs Dam on Dry Creek, a tributary to the Russian River.

Scientific studies occur in all units of the Region. The more intensely studied areas are along the coast where there are two marine life reserves and one refuge. The three areas, which include the Del Mar Landing Ecological Reserve, the Gerstle Cove Reserve, and the Bodega Bay Refuge, are located in Sonoma County. In addition to these, there are five other sites which have been included in the statewide system and designated as areas of special biological significance. These are the Pygmy Forest Ecological Staircase, kelp beds at Saunders Reef, kelp beds at Trinidad Head, Kings Range National Conservation Areas, and Redwood National Park.

Groundwaters throughout the Region are used for domestic, agricultural, and industrial supply. Shallow groundwaters are frequently used for domestic supply. These shallow groundwaters are often interconnected to deeper aquifers through their stratigraphy and through wells constructed across multiple aquifers.

Projected Water Demands

The population of the North Coast Region is projected to increase into the twenty-first century. Additional demands will be placed on the water resources of the Region to supply more water for future residential, commercial, industrial and agricultural developments, to accommodate a higher recreational demand, and to produce more fish and wildlife to satisfy increased sport fishing and hunting interests and commercial fishing requirements. At the same time, the aesthetic

beauty of the Region and its waters must be protected and in some cases enhanced.

In order to meet the increasing water demands posed by population growth in the North Coast Region, conservation, reclamation, and reuse of water must be encouraged. Previous projections of water demands assumed that normal weather patterns would prevail. The droughts of 1976 to 1977 and 1987 to 1992 revealed the deficiencies in water supply that exist in specific areas of the North Coast Region, including Fort Bragg, the Mendocino Coast, the Humboldt Bay area, and the Klamath River Basin.

The greatest demands for local water supply are expected to be in Sonoma and Mendocino counties although increased demand is expected region-wide in response to population increases. Agricultural water use is expected to increase in the Eel River, Navarro River, and Russian River areas. Almost all areas will experience small demands for agricultural water supply.

Recreational demands for the Region are projected to increase. The ocean and coastal areas and the lower reaches of the streams flowing to the ocean are expected to receive a major portion of the increased recreational demand. In recognition of the unique aesthetic and wildlife values of the North Coast Region rivers, several have been included in the California Wild and Scenic River System. These include the Smith River and all of its tributaries; the Klamath River below Iron Gate Dam, and portions of its major tributaries, the Scott, Salmon, North Fork Salmon Rivers and Wooley Creek, in addition to the Trinity River below Lewiston Dam and portions of its major tributaries, the North and South Forks, and the New River; and the main stem of the Eel River and portions of its major tributaries, the North, Middle and South Forks, and the Van Duzen River.

The demand for fishing has probably peaked due to reductions in anadromous salmonid species in several north coast rivers and streams. Efforts are being made in several of these areas to restore natural habitat in order to improve conditions for the fisheries. Salmon and steelhead populations in several north coast streams are being supplemented by releases of hatchery reared fish.